

Task Lighting in Offices - Code Notes

[ASHRAE 90.1-2007, 2009 IECC]

Defining task lighting

The appropriate treatment of task lighting for energy code compliance has always been a potentially confusing issue. The intent of ANSI/ASHRAE/IESNA Standard 90.1-2007 (as well as previous versions back to 1999) and the International Energy Conservation Code® (IECC) (including versions back to 2003) is for task lighting to be included in compliance calculations when it is part of the lighting design. This applies to office spaces where task lighting is common as well as other spaces where task lighting may appear in various forms.



Current office lighting design trends are evolving to incorporate more task and less overhead ambient lighting. These designs provide more flexibility and may require less installed power. The power density requirements

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in Standard 90.1 and IECC accommodate this design trend by requiring compliance for the entire lighting design, including task lighting. The wording in the definition of installed interior lighting power (in ASHRAE 90.1-2007) clearly notes that "#.all permanently installed general, task, and furniture lighting systems and luminaires" must be included as part of the lighting power density for compliance. The IECC does not have a similar specific definition that relates to task lighting, but the intent and expected application are the same.

Furniture-mounted task lighting

Furniture-mounted task lighting is often used in office spaces. In some cases, this furniture-mounted lighting is a planned element of the overall lighting design and by definition should be included for compliance. In other cases, furniture is a future tenant responsibility and the complete space lighting design is composed of typical overhead and other permanent luminaires only. Any lighting that was not part of the overall design and is brought in later by tenants, whether it is furniture mounted or portable, would not be included as part of energy compliance.

When considering code compliance for renovations, similar compliance guidelines would apply. Furniture or task lighting that is part of the design for the new lighting after renovations needs to comply with the Standard's guidelines for task lighting. Note that Standard 90.1 requires that all task lighting be separately controlled from general lighting. Standard 90.1-2007 and IECC 2009 both include an exception to counting the wattage of furniture-mounted task lighting as part of the lighting power density compliance when the task lighting is controlled by occupancy sensing or similar automatic shutoff.

Plan Review

1. Verify that the lighting schedule specifies all designed lighting. For task lighting that is considered part of the overall design, but not yet specified (for example, undershelf task lighting that will be brought in as part of furniture systems by a tenant), the compliance documentation should provide an accounting or estimate of this lighting as part of the complete space design.
2. Verify that the manufacturer's data on furniture and other equipment that incorporates task lighting, and which is part of the lighting design of the space, specify how the task lighting will be shut off. It should be shut off either by an integral control device or other accessible control visible to the occupant within the intended space.
3. Verify that any supplemental task lighting being claimed under the exemption is controlled with an automatic sensor.

Field Inspection

1. Verify that installed supplemental lighting has an integral control device. For furniture-mounted task lighting that is being exempted, the control must be automatic, such as an occupancy sensor.
2. Verify that non-exempted task lighting can be manually switched on and off either within the equipment/furniture or in a location accessible by the occupant.

Code Citations*

ASHRAE 90.1-2007, 3.2 Installed Interior Lighting Power

The power in watts of all permanently installed general, task, and furniture lighting systems and luminaires.

ASHRAE 90.1-2007, 9.4.1.4 Additional Controls



d. Task Lighting - supplemental task lighting, including permanently installed undershelf or undercabinet lighting shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided that the control device is readily accessible and located so that the occupant can see the controlled lighting.

IECC 2009, Section 505.5.1 Total connected interior lighting power.

The total connected interior lighting power (watts) shall be the sum of the watts of all interior lighting equipment.

IECC 2009, Section 505.5.1.3 Other Luminaires.

The wattage of all other lighting equipment shall be the wattage of the lighting equipment verified through data furnished by the manufacturer or other approved sources.

ASHRAE 90.1-2007 Reference and link

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PNNL-SA-66718